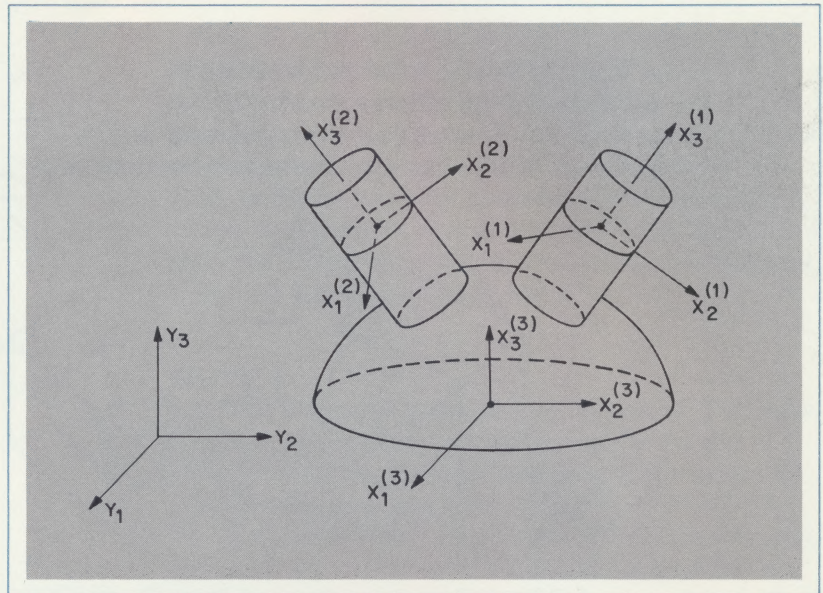


FEATURES

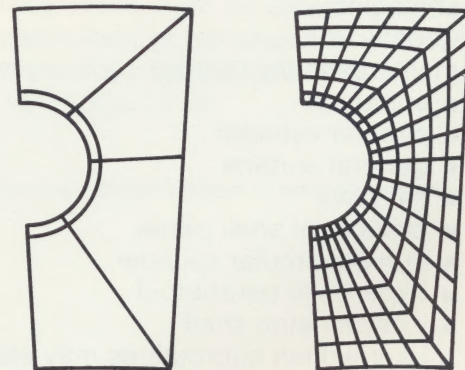
- Interactive pre- and post-processing
- Interfaces to major analysis programs
- 2-D and 3-D mesh generation
- Generation of doubly curved shell elements
- Pipeline mesh generation
- Bandwidth optimization



MENTAT

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- Nodes at specified locations
- Replication of element groups via translation and/or rotation



2-D Mesh Generation

MESH GENERATION 2-D (PLANAR) ELEMENTS

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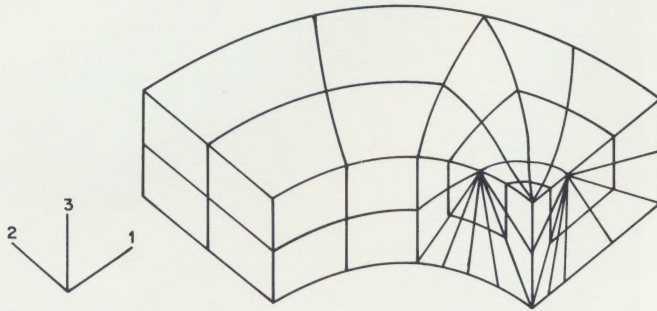
- Multiple axes of symmetry
- Weighted mesh generation

MESH GENERATION, 3-D (SOLID) ELEMENTS

MENTAT can be used to automatically generate meshes containing either 8- or 20-node hexahedrons which may have straight or curved edges. The domain is divided into blocks whose 12 edges are either straight lines or second order polynomials. Once the number of subdivisions in the three principal directions is specified, MENTAT generates the internal nodes and elements. Other features include:

- Joining of blocks
- Merge/Renumbering of coincident nodes

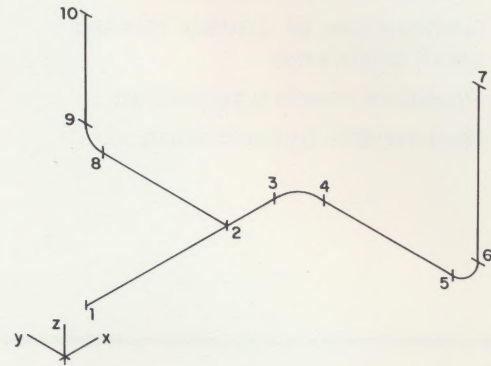
- Special option for crack meshes
- Nodes at specified locations
- Deletion of specified elements and nodes
- Block replication via translation, rotation and reflection



3-D Mesh Generation Cracked Block Study

PIPELINE MESH GENERATION

A MENTAT module is available to generate straight pipe runs and elbow elements. Elbows are defined by the bend radius and center of curvature for the bend or the tangent intersection point.



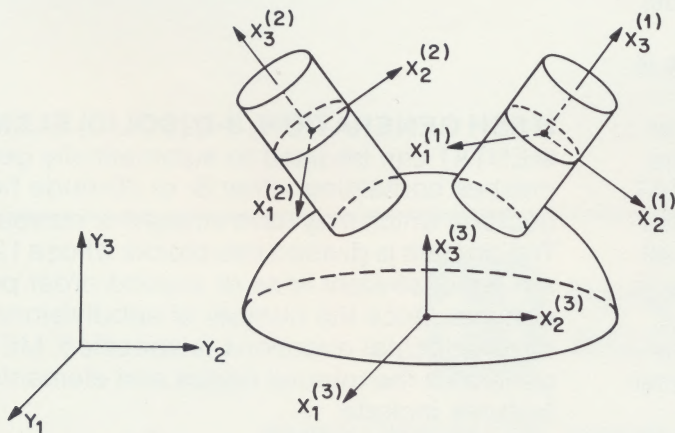
Pipeline Mesh Generation

GENERATION OF DOUBLY CURVED SHELL ELEMENTS

MENTAT may be used to generate doubly curved shell elements for most of the geometries frequently encountered in shell analysis. A library of mathematically defined surfaces includes:

- spherical
- circular cylinder
- general surface
- flat plate
- cylindrical shell panel
- curved circular cylinder
- hyperbolic paraboloid
- axisymmetric shell

User-written subroutines may also be used to generate the coordinates of well defined surfaces not included in the surface library.



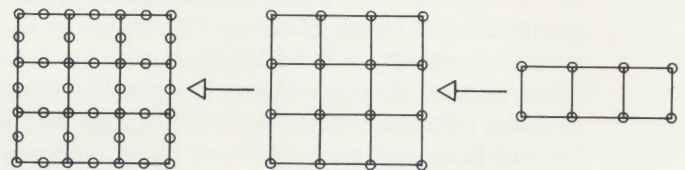
Shell Element Mesh Generation

INCREMENTAL MESH GENERATORS

MENTAT includes a facility which allows the generation of connectivity lists by repeating patterns and generation of nodal coordinates by interpolation. An option is available to automatically convert previously generated elements without mid-side nodes into elements having mid-side nodes.

Other features include:

- Nodal coordinate interpolation with geometric progression
- Connectivity pattern repetition, tapered meshes
- Circular arc nodal generation



Incremental Mesh Generation

MODEL DISPLAY

The model display facilities available in MENTAT are extremely comprehensive and include:

- Orthographic/perspective projections
- Hidden line removal

- Outlines/selected faces
- Pressure/flex displays
- User defined viewpoints/orientations
- Annotation of node/element identifiers
- Nodal load/boundary condition displays
- Full model/element subsets/constrained volume

MODEL EDITING

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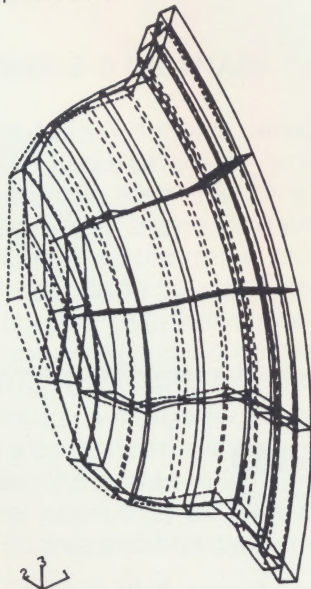
BANDWIDTH OPTIMIZATION

After the model has been generated and edited, a bandwidth optimization procedure is available to renumber the nodes such that the matrix solution time is reduced.

POST-PROCESSING GRAPHICS

Subsequent to the model solution, MENTAT can be used to interpret the results obtained by the analysis program. Post-Graphics facilities include:

- Deformed geometry - static loads, buckling modes, vibrational modes
- Contours - stress/strain/temperature, 2-D or on sections through solid elements
- X-Y plots - general variable vs. variable
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Post-Processing Deformed Shape

ENVIRONMENT

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 (415) 326-7511

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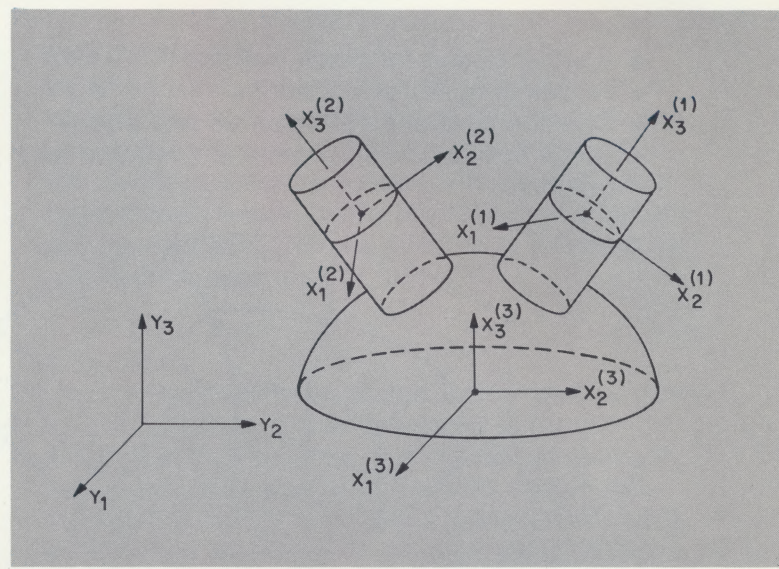
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Computer Systems Division, 2101 Cypress Creek Road
Fort Lauderdale, FL 33309 Telephone (305) 974-1700

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FEATURES

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MENTAT

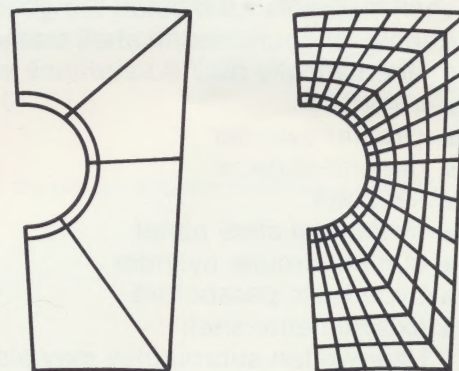
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- Multiple axes of symmetry
- Weighted mesh generation

- Nodes at specified locations
- Replication of element groups via translation and/or rotation



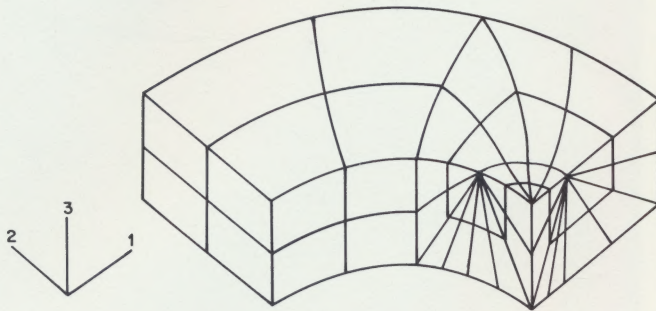
2-D Mesh Generation

MESH GENERATION, 3-D (SOLID) ELEMENTS

MENTAT can be used to automatically generate meshes containing either 8- or 20-node hexahedrons which may have straight or curved edges. The domain is divided into blocks whose 12 edges are either straight lines or second order polynomials. Once the number of subdivisions in the three principal directions is specified, MENTAT generates the internal nodes and elements. Other features include:

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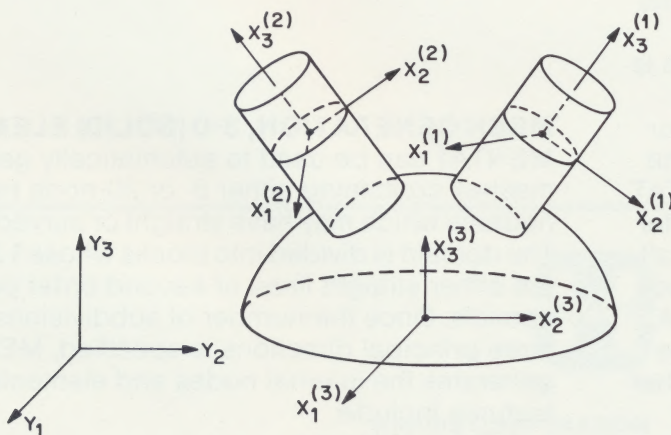
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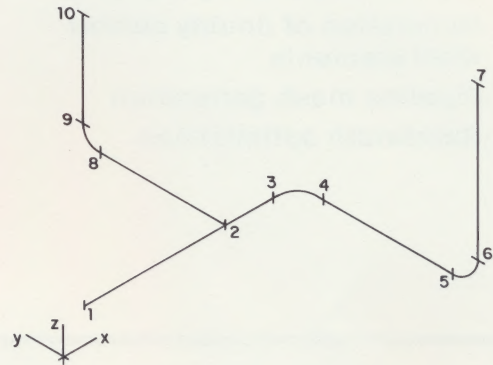
User-written subroutines may also be used to generate the coordinates of well defined surfaces not included in the surface library.



Shell Element Mesh Generation

PIPELINE MESH GENERATION

A MENTAT module is available to generate straight pipe runs and elbow elements. Elbows are defined by the bend radius and center of curvature for the bend or the tangent intersection point.



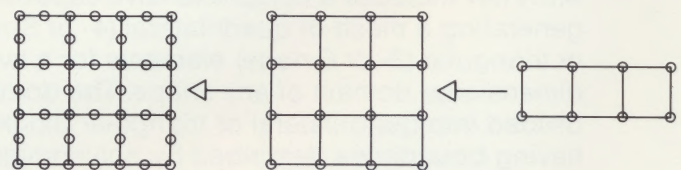
Pipeline Mesh Generation

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MENTAT includes a facility which allows the generation of connectivity lists by repeating patterns and generation of nodal coordinates by interpolation. An option is available to automatically convert previously generated elements without mid-side nodes into elements having mid-side nodes.

Other features include:

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Incremental Mesh Generation

MODEL DISPLAY

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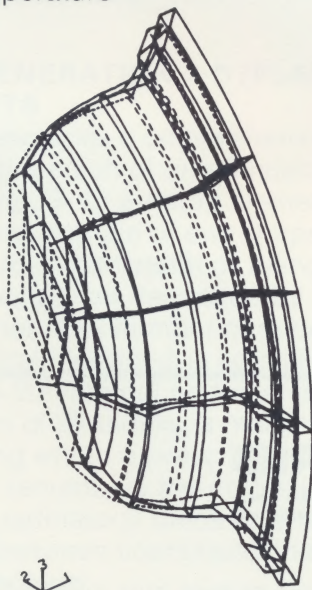
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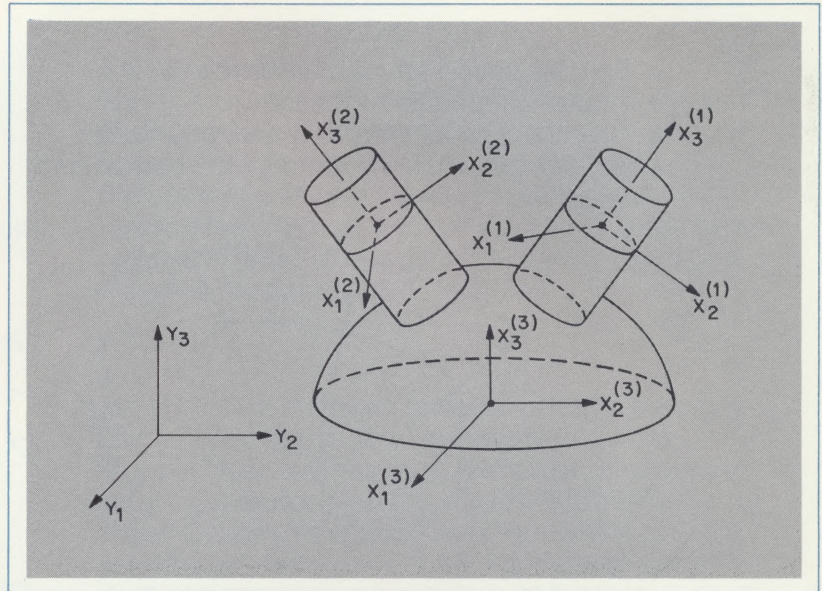
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MENTAT

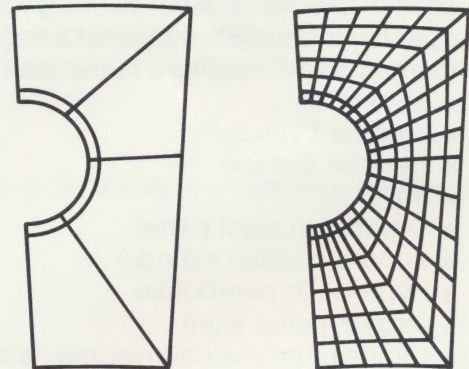
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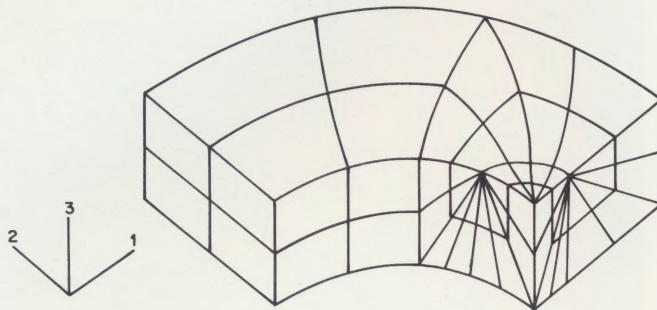
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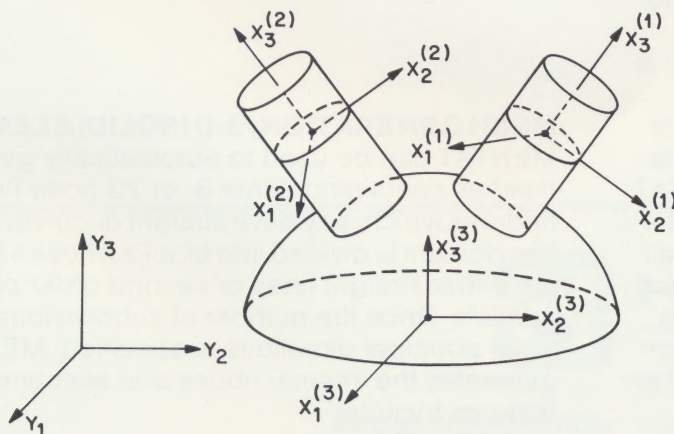
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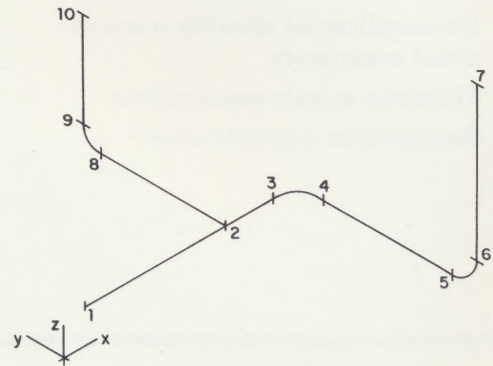
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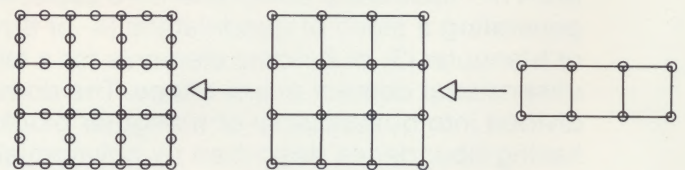
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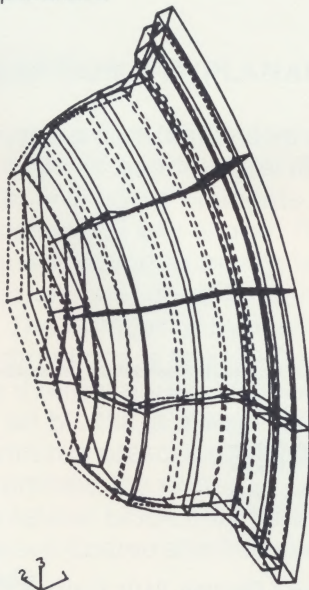
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HARRIS MENTAT

Model 1000

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